1. A method for fabricating a protective helmet, comprising the steps of:

providing a fiber-based filler;

mixing course ceramic particles into a thermoset resin, providing a resin mixture;

impregnating the resin mixture into the fiber-based filler;

forming the impregnated fiber-based filler into a shape of a protective helmet; and

curing the resin mixture.

2. The method of claim 1, wherein the course ceramic particles are created by a step of chopping the ceramic particles.

3. The method of claim 1, wherein the ceramic particles have an average size ranging from approximately 7 microns to approximately 8 microns.

4. The method of claim 3, wherein the mixing step includes the step of mixing an amount of the ceramic particles into the thermoset resin, wherein the amount of ceramic particles is approximately 10 to approximately 20 percent of the weight of the thermoset resin.

5. The method of claim 1, wherein the curing step includes a step of providing an appropriate amount of pressure and temperature to the impregnated fiber-based filler, for a sufficient period of time, such that the resin mixture flows around the fibers of the fiber-based filler and bonds to the fibers of the fiber based filler.

6. The method of claim 5, wherein:

the appropriate temperature applied ranges from approximately 75° to approximately 350°F;

the appropriate pressure applied ranges from approximately 70psi to approximately 800psi; and

the sufficient period of time ranges from approximately 30 seconds to approximately 10 minutes.

7. The method of claim 6, wherein the appropriate temperature is approximately 128°F and the sufficient period of time is approximately 8 minutes.

8. The method of claim 1, wherein the thermoset resin is selected from a group consisting of polyesters, vinyl esters and epoxies and wherein a curing agent is added to the thermoset resin.

9. The method of claim 8, wherein the thermoset resin is a vinyl ester.

10. The method of claim 8, wherein the curing agent is a catalyst and the method includes the step of, prior to the impregnating step, mixing the curing agent with either the thermoset resin or the resin mixture.

11. The method of claim 1, wherein a substantial portion of the fiber-based filler includes fibers that are selected from a group consisting of glass fibers, aramid fibers, azol fibers and any combination of glass, aramid and azol fibers.

12. The method of claim 11, wherein the fiber-base filler includes a fiber-based sheeting.

13. The method of claim 12, wherein the fiber-based sheeting includes a fiber mesh or batting attached to at least one substrate of a woven or non-woven fiber sheet.

14. The method of claim 13, wherein the fiber-based sheeting is approximately .090 inches thick.

15. The method of claim 13, wherein a substantial portion of the fiber-based sheeting includes glass fibers.

16. The method of claim 12, wherein the fiber-based sheeting is assembled into an approximate shape of a helmet prior to the impregnating step.

17. A method for fabricating a protective helmet, comprising the steps of:

providing a male mold component;

providing a female mold component;

positioning a fiber-based filler between the male and female mold components;

mixing course ceramic particles into a thermoset resin, providing a resin mixture;

positioning the resin mixture between the male and female mold components;

curing the fiber-based filler and resin mixture together by pressing the male and female mold components together for a curing time.

18. The method of claim 17, wherein the step of positioning the resin mixture between the male and female mold components includes a step of coating at least a portion of the fiber-based filler with at least a portion of the resin mixture.

19. The method of claim 18, further comprising the step of coating at least a portion of at least one of the male and female mold components with at least a portion of the resin mixture, prior to positioning the fiber-based filler between the male and female mold components.

20. The method of claim 17, wherein the course ceramic particles are created by a step of chopping a ceramic material.

21. The method of claim 17, wherein the ceramic particles have an average size ranging from approximately 7 microns to approximately 8 microns.

22. The method of claim 21, wherein the mixing step includes the step of mixing an amount of the ceramic particles into the thermoset resin, wherein the amount of ceramic particles is approximately 10 to approximately 20 percent of the weight of the thermoset resin.

23. A method for fabricating a protective helmet, comprising the steps of:

providing a male mold component;

providing a female mold component;

mixing course ceramic particles into a thermoset resin, providing a resin mixture;

coating at least a portion of a first one of the male and female mold components with a first portion of the resin mixture;

after the coating step, positioning a fiber-based filler over the first portion of the resin mixture in the first mold component;

after the positioning step, applying a second portion of the resin mixture over the fiber-based filler; and

curing the fiber-based sheeting and resin mixture together by pressing the male and female mold components together for a curing time.

24. The method of claim 23, wherein the course ceramic particles are created by a step of chopping a ceramic material.

25. The method of claim 24, wherein the ceramic particles have an average size ranging from approximately 7 microns to approximately 8 microns.

26. The method of claim 25, wherein the mixing step includes the step of mixing an amount of the ceramic particles into the thermoset resin, wherein the amount of ceramic particles is approximately 10 to approximately 20 percent of the weight of the thermoset resin.

27. The method of claim 23, wherein the curing step includes a step of pressing the male and female mold components together at an appropriate amount of pressure and temperature, for a sufficient period of time, such that the resin mixture flows around the fibers of the fiber-based filler and bonds to the fibers of the fiber based filler.

28. The method of claim 27, wherein:

the appropriate temperature applied ranges from approximately 75° to approximately 350°F;

the appropriate pressure applied ranges from approximately 70psi to approximately 800psi; and

the sufficient period of time ranges from approximately 30 seconds to approximately 10 minutes.

29. The method of claim 28, wherein the appropriate temperature is approximately 128°F and the sufficient period of time is approximately 8 minutes.

30. The method of claim 23, wherein the thermoset resin is selected from a group consisting of polyesters, vinyl esters and epoxies and wherein a curing agent is added to the thermoset resin.

31. The method of claim 30, wherein the thermoset resin is a vinyl ester.

32. The method of claim 30, wherein the curing agent is a catalyst and the method includes the step of, prior to the coating step, mixing the curing agent with either the thermoset resin or the resin mixture.

33. The method of claim 23, wherein the fiber-base filler includes a fiber-based sheeting.

34. The method of claim 33, wherein a substantial portion of the fiber-based sheeting includes fibers that are selected from a group consisting of glass fibers, aramid fibers, azol fibers and any combination of glass, aramid and azol fibers.

35. The method of claim 33, wherein the fiber-based sheeting includes a fiber mesh or batting bonded to at least one substrate of a woven or non-woven fiber sheet.

36. A method for fabricating a protective helmet, comprising the steps of:

providing a male mold component;

providing a female mold component;

mixing ceramic particles into a thermoset resin, providing a resin mixture;

coating at least a portion of a first one of the male and female mold components with a first portion of the resin mixture;

after the coating step, positioning a fiber-based filler over the first portion of the resin mixture in the first mold component;

after the positioning step, applying a second portion of the resin mixture over the fiber-based filler; and

curing the fiber-based filler and resin mixture together by pressing the male and female mold components together for a curing time.

37. The method of claim 36, wherein the ceramic particles are chopped ceramic particles.

38. A protective helmet comprising a fiber-based filler impregnated with a cured resin and course ceramic particle mixture, the impregnated fiber-based filler being formed into a shape having at least a bowl portion.

39. The protective helmet of claim 38, wherein the cured resin course ceramic particle mixture includes chopped ceramic particles.

40. The protective helmet of claim 39, wherein the chopped ceramic particles have an average size ranging from approximately 7 microns to approximately 8 microns.

41. The protective helmet of claim 40, wherein the amount of ceramic particles is approximately 10 to approximately 20 percent of the weight of the resin in the cured resin and course ceramic particle mixture.

42. A method for forming a relatively rigid, fiber composite object comprising the steps of:
providing a fiber-based filler;
mixing course ceramic particles into a thermoset resin, providing a resin mixture;
impregnating the resin mixture into the fiber-based filler;
forming the impregnated fiber-based filler into a desired shape; and
curing the resin mixture to form a relatively rigid, fiber composite object.

43. The method of claim 42, wherein the course ceramic particles are created by a step of chopping a ceramic material.

44. The method of claim 42, wherein the ceramic particles have an average size ranging from approximately 7 microns to approximately 8 microns.

45. The method of claim 42, wherein the mixing step includes the step of mixing an amount of the ceramic particles into the thermoset resin, wherein the amount of ceramic particles is approximately 10 to approximately 20 percent of the weight of the thermoset resin.

46. The method of claim 42, wherein the curing step includes a step of providing an appropriate amount of pressure and temperature to the impregnated fiber-based filler, for a sufficient period of time, such that the resin mixture flows around the fibers of the fiber-based filler and bonds to the fibers of the fiber based filler.

47. The method of claim 46, wherein:

the appropriate temperature applied ranges from approximately 75° to approximately 350°F;

the appropriate pressure applied ranges from approximately 70psi to approximately 800psi; and

the sufficient period of time ranges from approximately 30 seconds to approximately 10 minutes.

48. The method of claim 47, wherein the appropriate temperature is approximately 128°F and the sufficient period of time is approximately 8 minutes.

49. The method of claim 42, wherein the thermoset resin is selected from a group consisting of polyesters, vinyl esters and epoxies and wherein a curing agent is added to the thermoset resin.

50. The method of claim 49, wherein the thermoset resin is a vinyl ester.

51. The method of claim 49, wherein the curing agent is a catalyst and the method includes the step of, prior to the impregnating step, mixing the curing agent into either the thermoset resin or the resin mixture.

52. The method of claim 42, wherein a substantial portion of the fiber-based filler includes fibers that are selected from a group consisting of glass fibers, aramid fibers, azol fibers and any combination of glass, aramid and azol fibers.

53. The method of claim 52, wherein the fiber-based filler includes a fiber-based sheeting.

54. The method of claim 53, wherein the fiber-based sheeting includes a fiber mesh or batting bonded to at least one substrate of a woven or non-woven fiber sheet.

55. The method of claim 54, wherein the a substantial portion of the fiber-based sheeting includes glass fibers.